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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	09/964,785
Filing Date	September 26, 2001
First Named Inventor	Gary K. LODA
Art Unit	1797
Examiner Name	Kevin C. JOYNER
Attorney Docket Number	26015-194/P84

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
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  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☑ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):

Amended Apppeal Brief; Response to Notification of Non-Compliant Appeal Brief; Certificate of Express Mailing; return-receipt postcard

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Luce, Forward, Hamilton & Scripps,LLP		
Signature			
Printed name	Peter K. Hahn		
Date	November 13, 2007	Reg. No.	34,833

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Signature			
Typed or printed name	Sandra V. Edge	Date	November 13, 2007

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Gary K. LODA, *et al.*	Group Art Unit:	1744
Serial No.:	09/964,785	Examiner:	Krisanne M. JASTRZAB
Filed:	September 26, 2001	Confirmation No.:	3304
For:	SYSTEM FOR, AND METHOD OF, IRRADIATING OPPOSITE SIDES OF ARTICLES WITH OPTIMAL AMOUNTS OF CUMULATIVE RADIATION		

San Diego, California
November 13, 2007

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

CERTIFICATE OF EXPRESS MAILING

Dear Sir or Madam:

"Express Mail" mailing label No. EV 643170839 US

Date of Deposit: November 13, 2007

I hereby certify that the enclosed Response to Notification of Non-Complaint Appeal Brief; Amended Appeal Brief, Transmittal Form and return-receipt postcard are being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 CFR § 1.10 on the date indicated above and is addressed to Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

November 13, 2007
Date

Sandra V. Edge

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants	:	Gary K. Loda *et al.*
Serial No.	:	09/964,785
Confirmation No.	:	3304
Filed	:	September 26, 2001
For	:	SYSTEM FOR, AND METHOD OF, IRRADIATING OPPOSITE SIDES OF ARTICLES WITH OPTIMAL AMOUNTS OF CUMULATIVE RADIATION
Group Art Unit	:	1797
Examiner	:	Kevin C. Joyner

Mail Stop: APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

Dear Sir or Madam:

In response to the Notification of Non-Compliant Appeal Brief dated October 30, 2007, applicant respectfully responds as follows: Amended Appellants' Brief is submitted concurrently herewith.

Although it is believed that no fees are due for this submission, the Commissioner is authorized to charge any fee required to our Deposit Account No. 50-0683, in the name of Luce, Forward, Hamilton & Scripps LLP.

Respectfully submitted,

November 13, 2007
Date

Peter K. Hahn
Attorney for Applicant(s)
Reg. No. 34,833
c/o LUCE, FORWARD, HAMILTON & SCRIPPS LLP
600 West Broadway, Suite 2600
San Diego, California 92101
Telephone No.: (619) 699-2585
Telephone No.: (619) 446-8243

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants	:	Gary K. Loda *et al.*
Serial No.	:	09/964,785
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Group Art Unit	:	1797
Examiner	:	Kevin C. Joyner

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDED APPEAL BRIEF

Peter K. Hahn
Registration No: 34,833
Attorney for Appellants

LUCE, FORWARD,
HAMILTON & SCRIPPS, LLP
600 West Broadway, Suite 2600
San Diego, California 92101
Tel.: 619-699-2585
Fax.: 619-446-8243

Table of Contents

Introduction

This brief is filed pursuant to 37 C.F.R. § 41.31 to appeal the Final Rejection dated January 11, 2007 of claims 34, 35, 47, 48 and 51-66 of the above-identified patent application ("App.").

(1) Real Party In Interest

The real party in interest in this proceeding is the assignee of the present application, The Titan Corporation, 3033 Science Park Road, San Diego, CA 92121. The Titan Corporation holds all right, title and interest in and to the present invention and pending application by virtue of an assignment dated August 8, 2005, recorded in the United States Patent and Trademark Office on September 8, 2005, at Reel 016500, beginning at Frame 0484; and an assignment dated August 8, 2005, recorded in the United States Patent and Trademark Office on September 8, 2005, at Reel 016500, beginning at Frame 0489.

(2) Related Appeals And Interferences

This application has not previously been before the Board of Patent Appeals and Interferences. Appellants' undersigned representative is not aware of any related appeals and interferences within the meaning of 37 C.F.R. § 41.37(c)(1)(ii).

(3) Status Of Claims

Claims 34, 35, 47, 48 and 51-66 are pending with claims 34 and 47 being the independent claims. Claims 1-33, 36-46 and 50 were previously cancelled.

Claims 34, 35, 47, 48 and 51-66 were finally rejected in an Office Action mailed January 11, 2007. Claims 34, 35, 47, 48 and 51-66 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,504,898 to Kotler *et al.* ("Kotler") in view of U.S. Patent No. 4,852,138 to Bergeret *et al.* ("Bergeret") and U.S. Patent No. 6,492,645 to Allen *et al.* ("Allen").

Claims 34, 35, 47, 48 and 51-66 are therefore on appeal. A copy of the claims on appeal can be found in the attached Appendix.

(4) Status Of The Amendments

No amendments were filed subsequent to the mailing of the final Office Action ("Office Action") dated January 11, 2007.

(5) Summary Of The Claimed Subject Matter

The claims presently on appeal are drawn to a system and method of irradiating an article. The system and method utilize a plurality of radiation sources disposed on opposite sides of a load transport member configured to transport the article along a transport path. (App. at p. 10, lines 9-11; p. 11, line 11 – p. 14, line 15; p. 16, line 17 – p. 18, line 7; p. 19, line 15 – p. 20, line 4; and Figures 1, 4, 8, 11, 13 and 14.) The method of claim 34 comprises determining whether the article will receive a cumulative amount of radiation between a first limit and a second limit (App. at p. 31, line 13 – p. 32, line 4); positioning a radiation reducing member either into or out of a radiation path of a radiation source based on the determination of cumulative radiation (App. at 31, line 13 – p. 32, line 4); and directing radiation to the article from the radiation sources disposed on opposite sides of the load transport member (App. at p. 32, lines 13-17).

The system for irradiating an article of claim 47 generally comprises a load transport member, at least two radiation sources, a microprocessor, a radiation reducing member and a radiation reducing member actuator. The load transport member is configured to transport a plurality of articles through the system in a transport path. (App. at p. 10, lines 9-11; p. 11, line 11 – p. 14, line 15; p. 16, line 17 – p. 18, line 7; p. 19, line 15 – p. 20, line 4; and Figures 1, 4, 8, 11, 13 and 14.) The at least two radiation sources are disposed on opposite sides of the load transport member and each radiation source is configured to direct a radiation stream toward the transport path. (App. at p. 14, line 16 – p. 15, line 5; p. 20, lines 5-9; and Figures 4, 13 and 14.) The microprocessor is configured to determine whether a cumulative amount of radiation that

will be applied by the radiation sources to the article will be between a first limit and a second limit that is greater than the first limit. (App. at p. 31, line 13 – p. 32, line 9; and Figures 15 and 16.) The radiation reducing member actuator is configured to move the radiation reducing member (App at p. 30, lines 1-12) between a first position wherein the radiation reducing member is disposed outside of the radiation stream of a respective radiation source and a second position wherein the radiation reducing member is disposed within the radiation stream and between the radiation source and the transport path (App. at p. 32, lines 5-9; and Figures 13-16).

(6) Grounds of Rejection to be Reviewed on Appeal

Whether claims 34, 35, 47, 48 and 51-66 are rendered obvious by a combination of U.S. Patent No. 6,504,898 ("Kotler"), U.S. Patent No. 4,852,138 ("Bergeret") and U.S. Patent No. 6,492,645 ("Allen").

(7) Argument – Rejection under 35 U.S.C. § 103 over Kotler in view of Bergeret and Allen

(A) The Rejection

Appellants respectfully submit that the pending claims patentably distinguish over the prior art relied upon in the final Office Action dated January 11, 2007, in which claims 34, 35, 47, 48 and 51-66 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kotler in view of Bergeret and Allen. The Examiner asserts that Kotler teaches a method and apparatus for optimizing the irradiation of products wherein maximum and minimum dose rates are determined for a given geometry. (Office Action at p. 2, lines 8-10.) The Examiner argues that modification of the radiation is achieved by adjustably modulating the shape of the radiation generated by moving plates into and out of the path of radiation during the radiation process. (Office Action at p. 2, lines 12-14.)

The Examiner combines Bergeret and Allen with Kotler because Kotler fails to disclose utilizing a plurality of sources and a conveyor system. (Office Action at p. 3, lines 13-14.) The Examiner asserts that Bergeret teaches a method and apparatus for optimizing irradiation of products by rotating products around a cylindrical radiation source or by passing products between two radiation sources so that opposites sides of the product are irradiated. (Office Action at p. 3, lines 20-22.)

The Examiner similarly relies upon Allen for teaching a method and apparatus for the irradiation of articles that includes a conveyor system and multiple radiation sources. The Examiner asserts that Allen discloses a conveyor system that includes two converging conveyors moving at different speeds and having a gap therebetween with radiation sources provided on both sides. (Office Action at p. 3, lines 6-9.)

The Examiner argues that "it would have been well within the purview of one of ordinary skill in the art to substitute plural sources for irradiation and the conveyed system . . . in the system of Kotler et al., because it would allow for the simultaneous treatment of a larger number of products, including those with non-uniform geometries, while maintaining the dose control functions with adjustable radiation." (Office Action at p. 3, lines 13-17.)

(i) The Kotler Patent

Kotler describes an apparatus that attempts to provide a uniform dose of radiation to a product stack. In particular, Kotler asserts that products that have large dimensions and high density suffer from a high dose uniformity ratio ("DUR") across the product. (Kotler at col. 1, lines 36-37.) Kotler discusses numerous prior art systems and asserts that none provide a method to compensate for the different dose received by the exterior and interior portions to deliver a relatively flat dose distribution, i.e., a low DUR. (Kotler at col. 2, lines 50-55.) Further, Kotler

asserts that none of the prior art systems discuss "any real-time adjustment of shielding elements to optimize the dose distribution received by a product that accounts for alterations in product densities." (Kotler at col. 3, lines 11-14.)

The Kotler system depends on irradiation of a rotating product. Kotler compares systems that irradiate one or two sides of a product and systems that irradiate a rotating product and distinguishes the ability to achieve a low DUR with such systems. In particular, in Figures 1(a)-1(f) and 2(a)-2(f) and the related discussions, Kotler illustrates that the behavior of a system that utilizes a rotating product allows a low DUR to be achieved while the behavior of a system irradiating one or two sides of a product necessarily results in a relatively high DUR.

According to Kotler, by controlling the fractional exposure time of portions of a product, the DUR may be controlled. (Kotler at col. 10, lines 21-22.) In a rotating product, the fractional exposure time of a given portion can be controlled by adjusting the beam width. (Kotler at col. 10, lines 19-22.)

Kotler comes to this conclusion after considering irradiating a product on one or two sides and irradiating a rotating product. Exposing a product stack to two sided irradiation rather than one sided irradiation improves the DUR but still results in a relatively high DUR. (Kotler at col. 9, lines 55-61.) On the other hand, by rotating the product stack and altering the radiation beam width, a DUR of approximately 1 may be achieved. (Kotler at col. 10, lines 29-37.) In particular, Kotler illustrates that for irradiation of a rotating article, a change in the width of the radiation beam causes the dose distribution profile within the product to be inverted. (Kotler at col. 10, lines 29-32.) As a result, "an optimal radiation beam dimensions [sic] relative to a *rotating* product stack such as that shown in FIG. 2(e) can be determined, which is capable of

irradiating a rotating product stack and producing a substantially uniform dose throughout the product stack with a DUR approaching 1." (Kotler at col. 10, lines 32-37.)

Kotler specifically distinguishes systems that include conveyor transport systems and multiple radiation systems and states that those systems apply higher doses of radiation at the periphery than the material located at the center of the product. (Kotler at col. 2, lines 24-29 and lines 50-57; col. 3, lines 23-27.)

The Kotler apparatus includes a radiation source, an adjustable collimator, a turntable and a control system. Kotler, col. 3, lines 44-46; col. 4, lines 52-65; and col. 12, lines 44-60. The turntable is used so that all sides of the product may be exposed to the radiation source while increasing the fractional exposure time of the center of the product. Kotler col. 10, lines 10-25.

The adjustable collimator of Kotler is used to adjust the radiation beam width. The term "adjustable collimator" is defined as:

> a collimator with an adjustable aperture that shapes the radiation beam into any desired geometry, for example, but not limited to adjusting the height, width, offset of the beam axis from the axis of rotation of the turntable, or a combination thereof, before or during radiation processing of a product or product stack.

Kotler, col. 7, line 66 – col. 8, line 4; and col. 8, lines 15-17. The collimator is used to alter the width of the radiation beam directed to the rotating product "to control fractional exposure time and hence dose within the produc[t]." Kotler col. 10, lines 21-22.

(ii) The Bergeret Patent

Bergeret describes a conveyor system that combines multiple conveyors. Bergeret describes a prior art irradiation cell that includes a single conveyor that zig-zags within the shielded cell on both sides of a radiation source. (Bergeret at col. 2, lines 11-18; and Figure 1.) Bergeret asserts that such a system is limited because every product on the conveyor must systematically travel through each portion of the conveyor. (Bergeret at col. 2, lines 27-32.) As a result, it is difficult to control the exposure when articles having different sizes, densities and irradiation requirements are simultaneously on the conveyor. (Bergeret at col. 2, lines 33-47.)

The Bergeret apparatus is configured so that a product may pass the radiation sources at selected distances from the source on any one or more of a plurality of independent conveyors that extend parallel to the sources. (Bergeret at col. 3, line 66 – col. 4, line 2; Figures 2 and 3.) In particular, the system includes a joining conveyor that extends into the shielded cell and to at least one of a pair of transfer conveyors that extend through the cell generally perpendicular to the radiation sources. (Bergeret at col. 4, lines 3-13.) A plurality of processing conveyors extend generally parallel to the radiation sources between the transfer conveyors. (Bergeret at col. 4, lines 13-16.) The processing conveyors are located on both sides of and between the radiation sources. (Bergeret at col. 3, lines 53-56.)

(iii) The Allen Patent

The Allen patent discloses a system and method for irradiating articles. The system includes a plurality of conveyor portions that transport articles from a loading area to an unloading area. (Allen at col. 1, line 63 – col. 2, line 9; col. 3, lines 43-46; col. 4, line 61 – col. 5, line 6; col. 7, lines 1-18; Figures 1 and 11.) The conveyor includes a process conveyor that is divided into segments and forming gaps therebetween. (Allen at col. 5, lines 20-50; Figures 1

and 11.) Radiation sources are also included and they are disposed so that a radiation source directs radiation through a respective gap. (Allen at col. 5, line 50 – col. 6, line 42; and Figures 1, 4 and 11.)

As clearly indicated in the present application, a number of features disclosed in the Allen patent are incorporated into the embodiments of the present application.[1] In particular, figures 1-11 and the description related to those figures of the present application correspond to the same numbered figures and related description of the Allen patent. The Allen patent includes only figures 1-11.

(B) The Law of Obviousness

In order to establish a prima facie case of obviousness, three basic criteria must be met:

> "First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined), must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the appellants' disclosure." M.P.E.P. § 2142.

The first requirement is that there must be some suggestion or motivation to combine the teachings of the references to create the claimed invention. The analysis does not require precise teachings directed to the specific subject matter of the challenged claim, rather the analysis can find sufficient suggestion or motivation based on the inferences and creative steps that a person of ordinary skill in the art would employ. *KSR Int'l Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d 1385,

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[1] The Allen patent issued from U.S. Patent App. Serial No. 09/456,061. The present application indicates "[t]he preferred embodiments incorporate a number of the features disclosed in provisional [sic] application 09/456,061." (App. at p. 8, lines 1-2.)

1396 (2007). However, a proposed modification that renders the prior art invention being modified unsatisfactory for its intended purpose, there is no suggestion or motivation to make the proposed modification, because the prior art in effect teaches away from the modification. *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed Cir. 1984).

In *Gordon*, claims drawn to a blood filter were rejected over a reference that disclosed a liquid strainer for removing dirt and water from gasoline and other light oils. The U.S. Patent and Trademark Board of Appeals ("Board") affirmed the rejection of the Examiner asserting that it would have been obvious to turn the prior art liquid strainer upside down. *Id.* at 1126. The Court of Appeals for the Federal Circuit ("Federal Circuit") reversed the Board's decision after determining that turning the prior art liquid strainer upside down would render the strainer inoperable for its intended purpose. *Id.* at 1127. In particular, the gasoline to be filtered by the strainer would become trapped in a portion of the strainer and the water that the device was intended to separate out would flow freely out of the outlet of the strainer. *Id.* As a result, the Federal Circuit determined that "[i]n effect, [the prior art reference] teaches away from the board's proposed modification." *Id.*

The final requirement is that references when combined must teach or suggest all of the claim limitations. In other words, each claim limitation must be taught or suggested by at least one of the combined references. *In re Royka*, 180 U.S.P.Q. 580 (CCPA 1974). In *Royka*, the U.S. Court of Customs and Patent Appeals ("CCPA") reversed an Examiner's rejection under 35 U.S.C. § 103 because the references when combined did not teach or suggest each and every limitation recited in the claim. *Id.* at 583. The CCPA determined that a rejection of the independent claim as being anticipated by the cited reference failed because the reference did not teach each and every limitation recited in the claim. *Id.* In considering a rejection of the

dependent claims for obviousness, the court determined that the limitations missing from the initial references were also missing in the secondary reference. *Id.* Accordingly, the court reversed the obviousness rejection. *Id.*

(C) Application of the Law of Obviousness

(i) Claims 34 and 66

The rejection of claims 34 and 66 as being obvious over a combination of Kotler, Bergeret and Allen is improper because the references fail to disclose all of the recited features and because Kotler teaches away from the asserted modification. The Examiner asserts that Kotler discloses all of the features recited in independent claim 34 except employing a conveyor for transporting the articles and multiple radiation sources. In order to fill these gaps in Kotler the Examiner relies on Bergeret and Allen and argues that it would have been obvious to modify Kotler by replacing the turntable with a conveyor and by including multiple radiation sources. As support for combining the references, the Examiner asserts that "[i]t would have been well within the purview of one of ordinary skill in the art to substitute plural sources for irradiation and the conveyed system, as taught in Bergeret et al. and Allen et al., in the system of Kotler et al., because it would allow for the simultaneous treatment of a larger number of products, including those with non-uniform geometries, while maintaining the dose control functions with adjustable radiation." See Office Action, p. 3, lines 13-17. However, the teachings of Kotler are directly contrary to the Examiner's position.

The Examiner recognized that Kotler teaches modifying a radiation beam by adjustably modulating its shape, i.e., by employing a radiation collimator. In maintaining this rejection, the Examiner has failed to recognize the substantial distinction between a radiation collimator, as

described in Kotler, and a radiation reducing member (i.e., a radiation attenuator) as described and claimed in the present application.

The radiation collimator of Kotler changes the shape of a radiation beam that is projected toward a moving article. By altering the shape of the radiation beam, the amount of time a location within the article is exposed to the radiation beam, i.e., the "fractional exposure time, is altered. Changing the shape of the radiation beam does not alter the intensity of the beam, which is independent of the beam shape.

Conversely, the radiation reducing member of the present invention reduces the intensity of the radiation beam directed to an article moving along a linear conveyor. As described in the present application, the radiation reducing members are "attenuators which reduce the level of the cumulative amount of irradiation in the article 14 to a magnitude between the broken lines 302 and 304 in Figure 12," i.e., between the first and second radiation limits shown in Figure 12. See Application, p. 30, lines 9-11. As should be apparent by that disclosure, the radiation reducing members of the present invention *reduce the amplitude* of the radiation, not the fractional exposure time of the article.

Additionally, the radiation reducing member of the present invention is moved into or out of the radiation beam. Moving the adjustable collimator entirely out of the radiation beam would create the undesired scenario illustrated in Figures 1(a) and 1(b). Therefore, the adjustable collimator would never be moved entirely out of the radiation beam.

The only feature described in Kotler that could be argued to be a radiation attenuator is the auxiliary shield. However, that feature is only included to reduce the central dose of the radiation beam and is not movable into and out of the radiation beam. Kotler, col. 8, lines 41-43. Rather the auxiliary shield is "movable along the axis of the radiation beam" so that its position

between the radiation source and the product may be modified. Kotler, col. 8, lines 43-47. Therefore, Kotler does not describe positioning a radiation reducing member either into or out of a radiation path of a radiation source based on a determination of cumulative radiation.

Furthermore, modifying Kotler by replacing the turntable with a conveyor would render the device of Kotler unsatisfactory for its intended purpose. Kotler teaches away from the proposed modification because, as Kotler clearly illustrates, the desired radiation profile is achieved by employing an adjustable collimator in conjunction with a turntable. Specifically, in Kotler it is the inversion of the radiation profiles achieved between the scenario depicted in Figures 2(a) and 2(b) and the scenario depicted in Figures 2(c) and 2(d) that instigates the combination of the turntable and adjustable collimator of the Kotler device. It is the ability to adjust the shape of the radiation with the collimator in combination with the turntable that allows the system to achieve the scenario illustrated in Figures 2(e) and 2(f).

Substituting a conveyor for the turntable of Kotler would result in radiation profiles akin to those illustrated in Figures 1(a)-1(f). Modifying the shape of the radiation beam in those examples would not change the radiation profiles as it would for the turntable examples. In fact, Kotler clearly recognizes that both one sided and two sided irradiation results in a relatively high DUR which is precisely what Kotler intends to avoid. See Kotler, col. 9, lines 25-61.

Claim 66 depends from and includes all of the features of claim 34 and, for at least the same reasons, is patentable over the cited references.

(ii) Claim 35

In addition to the reasons described above with respect to claim 34, the combination of Kotler, Bergeret and Allen fails to render the invention recited in claim 35 obvious because the combination fails to disclose all of the recited features. In particular, the combination of

references fails to disclose a radiation reducing member that is positioned out of a radiation path of the radiation source when it is determined that the cumulative amount of radiation will be between the first and second limits. Moving the adjustable collimator entirely out of the radiation beam would create the undesired scenario illustrated in Figures 1(a) and 1(b). Therefore, the adjustable collimator of Kotler would never be moved entirely out of the radiation beam.

(iii) Claims 47, 51-54, 56-59, 63 and 64

The rejection of claims 47, 51-54, 56-59, 63 and 64 as being obvious over a combination of Kotler, Bergeret and Allen is improper because the references fail to disclose all of the recited features and because Kotler teaches away from the asserted modification. The Examiner asserts that Kotler discloses all of the features recited in independent claim 47 except employing a conveyor for transporting the articles and multiple radiation sources and relies upon Bergeret and Allen to overcome these insufficiencies as described above with respect to claim 34.

As described above, with reference to claim 34, the adjustable collimator of Kotler is significantly different than the radiation reducing member of the present invention. Because of that difference, the adjustable collimator of Kotler would never be moved entirely out of the radiation beam because it would create the undesired scenario illustrated in Figures 1(a) and 1(b). As a result, Kotler fails to describe a radiation reducing member that is moved between a first position wherein the radiation reducing member is disposed outside of a radiation stream and a second position wherein the radiation reducing member is disposed within the radiation stream.

Furthermore, neither Bergeret nor Allen disclose a radiation reducing member that is moved into and out of a radiation beam. At most, Bergeret discloses utilizing interference

between articles on parallel transport paths to screen radiation. Allen does not disclose a radiation reducing member.

Additionally, a person having ordinary skill in the art would not substitute the turntable of Kotler with a conveyor. Substituting a conveyor for the turntable of Kotler would result in radiation profiles akin to those illustrated in Figures 1(a)-1(f). Modifying the shape of the radiation beam in those examples would not change the radiation profiles as it would for the turntable examples. In fact, Kotler clearly recognizes that both one sided and two sided irradiation results in a relatively high DUR which is precisely what Kotler intends to avoid. See Kotler, col. 9, lines 25-61.

Claims 51-54, 56-59, 63 and 64 depend from and include all of the features recited in claim 47 and, for at least the same reasons, are patentable over the cited references.

(iv) Claim 48

In addition to the reasons described above with respect to claim 47, the combination of Kotler, Bergeret and Allen fails to render the invention recited in claim 48 obvious because the combination fails to disclose all of the recited features. The combination of references fails to disclose a system for irradiating an article that includes a radiation reducing member that is configured to be located in the first position responsive to a determination by the microprocessor that the cumulative amount of radiation is between the first and second limits. Moving the adjustable collimator entirely out of the radiation beam would create the undesired scenario illustrated in Figures 1(a) and 1(b). Therefore, the adjustable collimator of Kotler would never be moved entirely out of the radiation beam.

(v) Claim 55

In addition to the reasons described above with respect to claim 47, the combination of Kotler, Bergeret and Allen fails to render the invention recited in claim 55 obvious because the combination fails to disclose all of the recited features. The combination of references fails to disclose a system that includes a microprocessor that is configured to determine the cumulative amount of radiation that will be applied by an article based on a determination of the thickness of the article. None of the references disclose determining the cumulative amount of radiation that will be applied to an article based on the article thickness as described in the present application and shown in Figure 12.

(vi) Claim 60

In addition to the reasons described above with respect to claim 47, the combination of Kotler, Bergeret and Allen fails to render the invention recited in claim 60 obvious because the combination fails to disclose all of the recited features. The combination of references fails to disclose a radiation reducing member that includes a first portion that has a first thickness and a second portion that has a second thickness and the first portion is disposed within the radiation stream and between the radiation source and the transport path when the radiation reducing member is in the second position.

(vii) Claim 61

In addition to the reasons described above with respect to claims 47 and 60, the combination of Kotler, Bergeret and Allen fails to render the invention recited in claim 61 obvious because the combination fails to disclose all of the recited features. The combination of references fails to disclose a radiation reducing member that includes first and second portions having different thickness and the second portion is disposed within the radiation stream and

between the radiation source and the transport path when the radiation reducing member is in the second position. Even if the adjustable collimator or auxiliary shield disclosed in Kotler were considered a radiation reducing member, there is no disclosure in Kotler of including first and second portions of either having different thicknesses. In fact, because the adjustable collimator is used to shape the radiation beam by blocking portions of the beam, whether it includes portions with different thickness would be immaterial. There is no disclosure in either Bergeret or Allen of a radiation reducing member having portions with different thicknesses.

(viii) Claim 62

In addition to the reasons described above with respect to claims 47, 60 and 61, the combination of Kotler, Bergeret and Allen fails to render the invention recited in claim 48 obvious because the combination fails to disclose all of the recited features. The combination of references fails to disclose a radiation reducing member that includes first and second portions having different thickness and the first portion is disposed within the radiation stream and between the radiation source and the transport path when the radiation reducing member is in an intermediate position that is between the first position and the second position. There is no disclosure in any of the references of this feature.

(ix) Claim 65

In addition to the reasons described above with respect to claim 34, the combination of Kotler, Bergeret and Allen fails to render the invention recited in claim 65 obvious because the combination fails to disclose all of the recited features. The combination of references fails to disclose a method comprising a step of positioning a second radiation reducing member either into or out of a radiation path of a second radiation source based on a determination of cumulative radiation. There is no disclosure in any of the references of a second radiation

reducing member corresponding to a second radiation source that is moved into and out of the radiation path of the second radiation source based on a determination of cumulative radiation.

Conclusion

In view of the foregoing, appellants respectfully submit that the pending claims patentably distinguish over the prior art. Appellants respectfully request that the rejection under 35 U.S.C. §103(a) be reversed and that the above-identified application be passed to issue.

The Commissioner is authorized to charge any additional fee required, or credit any overpayment, to our Deposit Account No. 50-0683, in the name of Luce, Forward, Hamilton & Scripps LLP.

Dated: November , 2007

Respectfully submitted,

Peter K. Hahn
Registration No. 34,833
Attorney for Appellants

LUCE, FORWARD,
HAMILTON & SCRIPPS, LLP
600 West Broadway, Suite 2600
San Diego, California 92101
Tel.: (619) 699-2585
Fax: (619) 446-8243

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Claims Appendix

34. A method of irradiating an article using a plurality of radiation sources disposed on opposite sides of a load transport member configured to transport the article along a transport path past the plurality of radiation sources, including the steps of:

determining whether the article will receive a cumulative amount of radiation between a first limit and a second limit;

positioning a radiation reducing member either into or out of a radiation path of a radiation source based on the determination of cumulative radiation; and

directing radiation to the article from radiation sources disposed on opposite sides of the load transport member.

35. The method of claim 34 wherein the radiation reducing member is positioned out of a radiation path of the radiation source when it is determined that the cumulative amount of radiation will be between the first and second limits.

47. A system for irradiating an article, comprising

a load transport member configured to transport a plurality of articles through the system in a transport path;

at least two radiation sources disposed on opposite sides of the load transport member, wherein each radiation source is configured to direct a radiation stream toward the transport path for irradiating the article;

a microprocessor configured to determine whether a cumulative amount of radiation that will be applied by the radiation sources to the article will be between a first limit and a second limit, wherein the second limit is greater than the first limit;

a radiation reducing member; and

a radiation reducing member actuator that is configured to move the radiation reducing member between a first position wherein the radiation reducing member is disposed outside of the radiation stream of at least one of the radiation sources and a second position wherein the radiation reducing member is disposed within the radiation stream and between the radiation source and the transport path.

48. The system for irradiating an article of claim 47 wherein the radiation reducing member is configured to be located in the first position responsive to a_determination by the microprocessor that the cumulative amount of radiation is between the first and second limits.

51. The system for irradiating an article of claim 47, wherein the radiation reducing member is configured to be located in the second position responsive to a determination by the microprocessor that the cumulative amount of radiation applied to the article will be greater than the second limit.

52. The system for irradiating an article of claim 47, wherein the load transport member is a substantially horizontal conveyor and the at least one radiation source is disposed above the conveyor and at least one radiation source is disposed below the conveyor.

53. The system for irradiating an article of claim 47, wherein load transport member is a plurality of substantially horizontal conveyors configured to cooperatively transport articles in the transport path, wherein at least two horizontal conveyors are spaced from each other.

54. The system for irradiating an article of claim 53, wherein at least one radiation source is configured to direct the radiation stream through the space between the horizontal conveyors to the transport path.

55. The system for irradiating an article of claim 47, wherein the microprocessor is configured to determine the cumulative amount of radiation that will be applied by an article based on a determination of the thickness of the article.

56. The system for irradiating an article of claim 47, wherein the load transport member is configured to transport a plurality of articles through the system in a second transport path.

57. The system for irradiating an article of claim 56, wherein the second transport path is generally parallel to the first transport path.

58. The system for irradiating an article of claim 56, wherein the first and second transport path are convergent at a location before the radiation sources.

59. The system for irradiating an article of claim 56, wherein the first and second transport paths are configured to travel at different rates.

60. The system for irradiating an article of claim 47, wherein the radiation reducing member has a first portion that has a first thickness and a second portion that has a second thickness and the first portion of the radiation reducing member is disposed within the radiation stream and between the radiation source and the transport path when the radiation reducing member is in the second position.

61. The system for irradiating an article of claim 60, wherein the second portion of the radiation reducing member is disposed within the radiation stream and between the radiation source and the transport path when the radiation reducing member is in the second position.

62. The system for irradiating an article of claim 61, wherein the first portion of the radiation reducing member is disposed within the radiation stream and between the radiation source and the transport path when the radiation reducing member is in an intermediate position that is between the first position and the second position.

63. The system for irradiating an article of claim 47, wherein at least one radiation source is disposed above the load transport member and at least one radiation source is disposed below the load transport member.

64. The system for irradiating an article of claim 47, wherein the radiation sources are spaced from each other along the load transport member.

65. The method of claim 34, further comprising the step of positioning a second radiation reducing member either into or out of a radiation path of a second radiation source based on the determination of cumulative radiation.

66. The method of claim 34, wherein the radiation reducing member is positioned within a radiation path of the radiation source when it is determined that the cumulative amount of radiation will not be between the first and second limits.

Evidence Appendix

None.

Related Proceeding Appendix

None.